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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte UMA ARUN

Appeal 2009-0804
Application 10/784,569
Technology Center 2600

Decided[1]: April 7, 2009

Before KENNETH W. HAIRSTON, JOHN A. JEFFERY, and THOMAS S. HAHN, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 from the Examiner's rejection of claims 21 and 23-36. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

STATEMENT OF THE CASE

Appellant invented a method for tuning a hands-free mobile device used in a motor vehicle. The method uses a noise suppression algorithm to adjust for ambient noise within the vehicle based on information, such as vehicle speed, sounds in the vehicle, weather, and surface road conditions.[2] Independent claim 21 is reproduced below:

> 21. A method of tuning a hands-free system in a mobile vehicle, the method comprising:
>
> receiving a plurality of vehicle condition inputs, including at least one road input based on global positioning coordinates, via a vehicle communication bus;
>
> creating a noise parameter based on the vehicle condition inputs; and
>
> adjusting a noise suppression algorithm of the hands-free system based on the created noise parameter.

The Examiner relies upon the following as evidence in support of the rejection:

Tomisawa	US 5,850,458	Dec. 15, 1998
Cairns	US 2002/0097884 A1	July 25, 2002

[2] *See generally* Spec. 1:10-2:7 and 13:15-18:22.

Venkatesh	US 6,674,865 B1	Jan. 6, 2004
Stankewitz	US 2004/0142672 A1	July 22, 2004 (filed Nov. 6, 2003)
Schubert	US 6,898,501 B2	May 24, 2005 (filed July 15, 1999)
Grivas	US 2005/0130723 A1	June 16, 2005 (filed Dec. 16, 2003)

(1) Claims 21 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cairns and Schubert (Ans. 3-4).

(2) Claims 23 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cairns, Schubert, and Venkatesh (Ans. 4).

(3) Claims 25, 28, 30-33, 35, and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cairns, Schubert, Grivas, and Official Notice[3] (Ans. 6-9).

(4) Claims 29 and 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cairns, Schubert, Grivas, Official Notice,[4] and Venkatesh (Ans. 9).

(5) Claims 21 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Stankewitz and Schubert (Ans. 4-5).

(6) Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Stankewitz, Schubert, and Tomisawa (Ans. 5-6).

(7) Claims 23 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Stankewitz, Schubert, and Venkatesh (Ans. 6).

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[3] While not the heading of the rejection (Ans. 6-7), the body of the rejections includes taking Official Notice (Ans. 7-9).

[4] The rejection of claims 29 and 34 follows from the rejection of claims 28 and 33 (Ans. 9), which includes the taking of Office Notice.

Rather than repeat the arguments of Appellant or the Examiner, we refer to the Briefs and the Answer[5] for their respective details. In this decision, we have considered only those arguments actually made by Appellant. Arguments which Appellant could have made but did not make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Regarding the obviousness rejections including Cairns, we group the claims as follows: (1) claim 21; (2) claim 26; (3) claims 23 and 27; (4) claim 25; (5) claims 28-32; (6) claims 33, 35, and 36; and (7) claim 34. With respect to the obviousness rejections citing to Stankewitz, we group the claims as follows: (1) claim 21; (2) claim 26; (2) claim 24; and (3) claims 23 and 27.

I. OBVIOUSNESS REJECTIONS INVOLVING CAIRNS

(1) Claim 21

Regarding independent claim 21, the Examiner finds that Cairns and Schubert collectively teach all the recited elements (Ans. 3-4). Appellant argues: (1) the bumpiness level taught by Schubert is not a road input as recited in claim 21; (2) there is no motivation to combine Schubert with Cairns because Cairns teaches away from such a combination; and (3) Schubert is non-analogous art (App. Br. 9; Reply Br. 2).

[5] Throughout this opinion, we refer to (1) the most recent Appeal Brief filed December 11, 2006; (2) the Examiner's Answer mailed September 11, 2006 and supplemented August 20, 2007; and (3) the Reply Brief filed October 5, 2006.

ISSUES

The following issues have been raised in the present appeal:

(1) Under § 103, has Appellant shown the Examiner erred in finding that the bumpiness level taught by Schubert is a road input based on global positioning coordinates as recited in claim 21?

(2) In rejecting claim 21 under § 103, has Appellant shown that Cairns teaches away from combining Schubert's bumpiness level with Cairns' disclosure of using only the vehicle's mechanical and electrical conditions to determine the noise parameter?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence.

Cairns

1. Cairns discloses a vehicle 10 (e.g., car, truck, bus, boat, or plane) that has a mobile terminal 20 and a hands-free adapter 30 mounted on vehicle 10. (Cairns, ¶ 9; Fig. 1).
2. Cairns discloses vehicle 10 includes a noise reduction device 40, coupled to the hands free adapter 30, that processes the input from a microphone array 14 and uses a noise reduction algorithm to reduce the background audio noise. (Cairns, ¶¶ 2, 4, 10, and 11; Fig. 1).
3. More specifically, various parameters are supplied to the noise reduction algorithm. These parameters include characteristics related to the physical mechanical/electrical condition of the vehicle (e.g., vehicle speed, motor rpm, radio on/off status, open/closed status of the windows) and exclude characteristics not related to

mechanical/electrical condition of the vehicle (i.e., direct measurements of the ambient noise level) (Cairns, ¶¶ 4 and 11-13).

4. Cairns detects the vehicle conditions at 210, determines the parameters based on the conditions 230, and applies the parameters to the noise reduction algorithm 240. (Cairns, ¶ 14; Fig. 3).
5. Cairns discloses that the vehicle includes tires. (Cairns, ¶ 9; Fig. 1).

Schubert

6. Schubert teaches a vehicle with a positioning control system that uses geo-reference maps 350 stored on memory card 306 that are transferable from an office or a computer 304 to the memory card 306. (Schubert, col. 17, ll. 7-19 and 56-61; Fig. 12).
7. Schubert's geo-reference map 350 includes longitude and latitude coordinates, altitudes, and bumpiness levels for each point or location. For example, the road 352 has a bumpiness level 1 (e.g., point nos. 1-4), a portion 356 of the field 354 has a bumpiness level 2 (e.g., point no. 5), and another portion 358 of the field 354 has a bumpiness level 3. (Schubert, col. 17, l. 61-col. 18, l. 37; Figs. 13-14).
8. Schubert teaches the bumpiness level affects vibrations within a car and uses the bumpiness level data to adjust the performance parameters of a vehicle system. (Schubert, col., 1, ll. 19-29 and col. 18, ll. 8-37)

Specification

9. The Specification states various road conditions change the ambient noise level within a vehicle, including the type and condition of the

road, such as a paved road, highway, or a dirt road (Spec. 14:1-12).

PRINCIPLES OF LAW

Discussing the question of obviousness of a patent that claims a combination of known elements, *KSR Int'l v. Teleflex, Inc.*, 550 U.S. 398, 127 S. Ct. 1727 (2007), explains:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* [*v. AG Pro, Inc.,* 425 U.S. 273 (1976)] and *Anderson's-Black Rock*[*, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969)] are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

KSR, 127 S. Ct. at 1740.

ANALYSIS

Cairns discloses a hands-free system 30 in a mobile vehicle 10 with a noise reduction device 40 (FF 1-2). Cairns discloses receiving a plurality of vehicle condition inputs at location 210, such as vehicle speed and whether the window is open or closed (FF 3), creating a noise parameter based on the vehicle conditions at step 230, and adjusting a noise suppression algorithm based on the noise parameter at step 240 (FF 4). Since reducing the audio background noise of a

hands-free system 30 in a vehicle 10 involves adjusting parameters (FF 3-4), Cairns also discloses a method for tuning a hands-free system 30 in a mobile vehicle 10 to the noise environment (FF 1-4). The Examiner admits (Ans. 3), however, that Cairns does not disclose a vehicle condition input used to create the noise parameter that also includes a road input based on global positioning coordinates. The Examiner relies on Schubert's disclosure of a geo-reference map 350 to teach this missing limitation in claim 21 (Ans. 3-4).

Appellant first argues that the bumpiness level data in Schubert's geo-reference map 350 is not the same as the claimed "road input" that is based on global positioning coordinates. We are not persuaded. For each data point (e.g., data point no. 1) on the geo-reference map 350, there is a corresponding longitude and latitude coordinate and a bumpiness level (FF 7). For example, points 1 through 4 are located on road 352 at given longitudes and latitudes and have a bumpiness level of 1, while point 5 of field region 356 has another longitude and latitude and a bumpiness level of 2. (*Id.*) The Specification similarly describes one such road input based on global positioning coordinates to include the type of road surface the driver is on, such as a paved or dirt road (FF 9). Thus, each bumpiness level correlates to or is based on global positioning coordinates (e.g., longitude/lateral coordinates), and Schubert teaches a road input based on global positioning coordinates as recited in claim 21.

Appellant further argues that the bumpiness level of the road is not a physical, mechanical, or electrical vehicle condition that Cairns uses to adjust the noise suppression algorithm (App. Br. 9). Cairns

discusses using only the vehicle's physical, mechanical and electrical conditions to adjust a noise suppression algorithm of an audio background noise reduction device 40 (FF 2-4) and excludes direct measurements of the vehicle's ambient noise (FF 3). Clearly, the bumpiness level is not a direct measurement of the ambient noise. Moreover, the bumps in the road come in contact with a vehicle's tires (FF 5) and, thus, affect a mechanical condition of the vehicle. Schubert explains that the mechanical condition resulting from the bumpiness level of the road is vehicle vibrations (FF 8). Additionally, anyone, including an ordinarily skilled artisan, who has driven from a paved road to a dirt road, knows that the dirt road creates more vehicle vibrations, which translate into more noise within the vehicle. Similar to Cairns' recognition that vehicle speed and motor rpm affect noise within a vehicle due to the vibrations (*see* FF 2-3), one of ordinary skill in the art would have recognized that considering the road surface type, such as Schubert's consideration of the bumpiness level, improves application of Cairns' noise suppression algorithm (FF 2-4) by factoring in another mechanical property affecting noise within a vehicle. *See* KSR, 127 S. Ct. at 1740.

Additionally, Cairns teaches the hands-free system 40 can be used with many different types of vehicles, including trucks, boats, and planes (FF 1). Cairns, therefore, suggests placing its hands-free noise reduction system 40 within many types of vehicles, including the vehicle disclosed in Schubert. *See* FF 6. In such a vehicle, Schubert identifies the bumpiness of the road as causing vibrations within the vehicle (FF 8) and uses the information to adjust the

vehicle performance. (*Id.*) An ordinarily skilled artisan would have recognized that a mechanical property of a Schubert vehicle would include vibrations generated by a road's bumpiness level and that factoring such a characteristic into Cairns' hands-free system 30 located within Schubert's vehicle would certainly improve Cairns' audio noise reduction device 40 (FF 2-3). Thus, we are not convinced that Cairns' discussion of using only vehicular mechanical and electrical conditions teaches away from a combination with Schubert.

Appellant also contends that Schubert is non-analogous art (Reply Br. 2). This argument was not timely raised in the Appeal Brief, but rather was brought up for the first time in the Reply Brief. As such, this argument is waived.[6] Furthermore, we are persuaded that Schubert is reasonably pertinent to the problem addressed by Appellant. The Specification identifies many road conditions that change the ambient noise within a vehicle, including type and condition of the road (FF 9). Schubert similarly recognizes that road condition affects vibrations (FF 8) and noise within a vehicle.

For the above reasons, Appellant has not shown the Examiner erred in rejecting claim 21 under 35 U.S.C. § 103(a) as being unpatentable over Cairns and Schubert.

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[6] *See Optivus Tech., Inc. v. Ion Beam Appls. S.A.*, 469 F.3d 978, 989 (Fed. Cir. 2006) ("[A]n issue not raised by an appellant in its opening brief … is waived.") (citations and quotation marks omitted).

(2) Claim 26

Claim 26 recites an additional step of determining a change in a type of road input based on the received road input and adjusting the noise suppression algorithm in response to the change in the road input type. The Examiner finds that the combination of Cairns and Schubert teaches all the recited elements of claim 26 (Ans. 3-4). Appellant contends that the Examiner uses hindsight and provides no evidence to conclude that changing global coordinates would result in a change in a bumpiness level or adjust the noise suppression algorithm appropriately (App. Br. 9-10). Therefore, has Appellant shown that the Examiner erred in rejecting claim 26 under § 103 by relying on impermissible hindsight to teach Cairns and Schubert collectively determine a change in the road input and adjust a noise suppression algorithm in response to the road input change.

Schubert demonstrates that when the driver moves from a road 352 (e.g., data point nos. 1-4) to the field 354 (e.g., data point no. 5), the bumpiness level changes from level 1 to level 2 (FF 7). By incorporating Schubert's geo-reference maps with Cairns' noise suppression algorithm, the combined Cairns/Schubert device would include determining the change in road type when the user moves from data point nos. 1 through 4 to data point no. 5. (*Id.*) Additionally, for the reasons discussed above in connection with claim 21, we find that the combination of Cairns and Schubert provide ample reason to include a bumpiness level as an additional mechanical condition characteristic of the vehicle's noise suppression algorithm in order to improve Cairns' audio noise reduction device 40. Therefore, we are not persuaded that the Examiner has engaged in impermissible hindsight in rejecting claim 26.

For the above reasons, Appellant has not shown the Examiner erred in rejecting claim 26 under 35 U.S.C. § 103(a) as being unpatentable over Cairns and Schubert.

(3) Claims 23 and 27

Representative claim 23[7] recites that the vehicle input conditions include an external vehicle climate input based on the weather outside the vehicle. The Examiner finds that the combination of Cairns, Schubert, and Venkatesh teaches this limitation (Ans. 4). Appellant argues that there is no motivation to combine Venkatesh with Cairns because Cairns teaches away from such a combination. Specifically, Appellant states Cairns' noise reduction algorithm excludes using characteristics which are not related to the physical, mechanical/electrical condition of the vehicle and that the external climate is not a physical, mechanical/electrical condition of the vehicle (App. Br. 10; Reply Br. 2).

ISSUE

The following additional issue has been raised in the present appeal:

Has Appellant shown the Examiner erred in rejecting claim 23 under § 103 by arguing Cairns teaches away from combining Venkatesh's teaching of using weather conditions as a noise characteristic with Cairns' disclosure of using only mechanical and electrical conditions of the vehicle to reduce audio background noise?

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[7] Appellant argues claims 23 and 27 as a group (App. Br. 10-11; Reply Br. 2). Accordingly, we select independent claim 23 as representative. 37 C.F.R. § 41.37(c)(1)(vii).

FINDINGS OF FACT

The record supports the following additional findings of fact (FF) by a preponderance of the evidence.

10. Venkatesh discloses a noise reduction system within a moving vehicle (e.g., car, truck, airplane, helicopter, or boat) that includes a filter. The filter depends on noise characteristics, including vehicle speed, road surface, and weather. (Venkatesh, col. 1, l. 6 - col. 2, l. 42).

ANALYSIS

As explained above in the context of claim 21, factors that are not an immediate part of the vehicle can affect the mechanical conditions within the vehicle. Cairns recognizes that outdoor sounds (e.g., open window status) can affect the noise parameters within the vehicle and are accounted for in a noise reduction algorithm (FF 2-3). The road's bumpiness is another condition identified by Schubert that creates vibrations within the vehicle (FF 8) and, in turn, creates noises within the vehicle. Venkatesh also identifies that the road surface has an effect on the noise within a vehicle and is considered in a noise reduction system so as to improve the clarity of sounds within a vehicle (FF 10). These references recognize characteristics that are not directly part of the vehicle but still affect the vehicle's physical, mechanical, and electrical condition as disclosed by Cairns (FF 3).

Venkatesh further teaches using factors such as weather or external vehicle climate as an input to filter or reduce the noise within the vehicle (FF 10). Again, while the weather is outside or external to a vehicle, we agree that different weather conditions can impact conditions within the vehicle.

For example, rain drops tap on a vehicle's body and windows, and wind blows against a vehicle's body. These conditions translate into sounds or noises within the vehicle. Similar to the bumps on the road, each of these weather conditions has an impact on the condition of the vehicle. Furthermore, one skilled in the art would appreciate that a driver may use windshield wipers (i.e., a mechanical condition) in the rain. As the wipers produce sounds within a vehicle, an ordinarily skilled artisan would appreciate that Cairns' noise reduction device 40 would be improved by including an external vehicle climate input, such as rainy weather, into the noise reduction algorithm (FF 3) since climate inputs affect conditions of the car. For these reasons, Cairns' teaching to exclude characteristics unrelated to physical and mechanical conditions of the vehicle does not teach away from including an external weather climate input based on the weather outside the vehicle as taught by Venkatesh.

Appellant also contends Venkatesh teaches a volume control system and not a method for tuning a hands-free system in a mobile vehicle (App. Br. 11). The Examiner has relied on Cairns, not Venkatesh, to teach a hands-free tuning system (FF 1-4). Additionally, the portions of Venkatesh cited by the Examiner discuss prior art approaches to filtering out noise within the confines of a moving vehicle (FF 10) and do not relate to a volume control system. As stated previously, Venkatesh teaches that one skilled in the art would have recognized that weather is a characteristic that affects noise within a moving vehicle. Lastly, to the extent that Appellant is arguing that Venkatesh is non-analogous art, we disagree. Venkatesh is reasonably pertinent to the problem with which the inventor is concerned, such as techniques for addressing noise within a moving vehicle. (*Id.*)

For the above reasons, Appellant has not shown the Examiner erred in rejecting claims 23 and 27 under 35 U.S.C. § 103(a) as being unpatentable over Cairns, Schubert, and Venkatesh.

(4) Claim 25

Claim 25 recites that the road input is received from a call center using at least a wireless carrier system, a communication network, and a land network. The Examiner finds that the combination of Cairns, Schubert, Grivas, and Official Notice teaches all the limitations in claim 25 (Ans. 6-7). Appellant asserts the same arguments made with respect to claim 21 (Br. 15).

ISSUE

The following additional issue has been raised in the present appeal:

Has Appellant shown the Examiner erred in rejecting claim 25 under § 103 by finding Cairns, Schubert, Grivas, and Official Notice collectively teach the road input is received from a call center?

FINDINGS OF FACT

The record supports the following additional findings of fact (FF) by a preponderance of the evidence.

11. Grivas teaches a vehicle-based telematics unit 208 communicating with an emergency call center (e.g., a Public Safety Answering Point (PSAP), such as when an air bag deploys (Grivas, ¶ 34; Fig. 2).

12. Grivas teaches the emergency notification application 278, the hands-free module 275, and the noise cancellation module 276 are connected (Grivas, ¶ 36; Fig. 2).

ANALYSIS

Neither Cairns nor Schubert discloses receiving road input from a call center. *See generally* Cairns and Schubert. At best, Schubert teaches the map 350, which includes bumpiness levels, is stored on memory card 306, and can be transferred from a centralized computer 304 to the memory card 306 (FF 6). Thus, while Schubert discloses receiving road input from a remote computer, Schubert does not receive road input from a call center. The Examiner relies on Grivas and Official Notice to teach the road input is received from a call center (Ans. 7).

Grivas teaches a telematics unit 208 communicating with an emergency call center, such as when an air bag deploys (FF 11). This portion of Grivas does not disclose the telematics unit 208 receiving any road input from the call center. Moreover, while we can see the "emergency notification application" 278 as suggesting a call center, this "call center" interacts with the hands-free and noise cancellation modules 275 and 276 (FF 12). Grivas does not discuss any details of how the modules interact, including receiving a road input from a call center. Finally, the taking of Official Notice that telematics units transmit and receive information from a call center for unlocking doors, remotely accessing doors, and starting a vehicle does not support a conclusion that an ordinarily skilled artisan would have recognized a call center would send road input information that is used to adjust a noise parameter for a hands-free system. *See KSR*, 127 S. Ct. at

1739-41. Thus, Cairns, Schubert, Grivas, and Official Notice collectively do not provide an adequate rational underpinning to teach that the road input is received from a call center as required by claim 25.

For the above reasons, Appellant has shown the Examiner erred in rejecting claim 25 under 35 U.S.C. § 103(a) as being unpatentable over Cairns, Schubert, Grivas, and Official Notice.

(5) Claims 28-32

Independent claim 28 recites a method of tuning a mobile vehicle's hands-free system that includes the step of receiving a road input from the call center that is commensurate in scope to claim 25. The Examiner finds that the combination of Cairns, Schubert, Grivas, and Official Notice teaches these limitations (Ans. 7-9). For the reasons discussed above in connection with claim 25, we are persuaded that Cairns, Schubert, Grivas, and Official Notice collectively do not provide an adequate rational underpinning to teach the step of receiving a road input from the call center in response to the sending required by claim 28.

Independent claim 31 includes limitations commensurate in scope to claim 28, and we are also persuaded the relied-upon combination does not teach the limitations of claim 31 for the reasons disclosed above in connection with claim 25.

For the foregoing reasons, Appellant has shown the Examiner erred in rejecting independent claims 28 and 31 and dependent claims 29, 30, and 32 under 35 U.S.C. § 103(a) as being unpatentable over Cairns, Schubert, Grivas, and Official Notice.

(6) Claims 33, 35, and 36

Independent claim 33 differs in scope from independent claims 28 and 31. Claim 31 recites receiving a GPS location at a telematics unit, determining a road input based on the GPS location and a geographic information system database, and adjusting a noise parameter for the hands-free system based on the road input. The Examiner finds Cairns, Schubert, Grivas, and Official Notice collectively teaches these limitations (Ans. 7-9). Appellant presents the same arguments for claims 28, 31 and 33 (App. Br. 15-17). Therefore, has Appellant shown the Examiner erred in rejecting claim 33 by arguing that Cairns teaches away from the combination with Schubert, Grivas, and Official Notice to determine a road input based on the GPS location and geographic information system database that is used to adjust a noise parameter of a hands-free system?

We are not persuaded by Appellant's argument for the reasons indicated above in connection with claim 21. This argument also fails to persuasively rebut the Examiner's prima facie case of obviousness – a position we find reasonable. Schubert teaches transferring geo-reference map 350 from a computer to a memory card 306 of the positioning control system or telematics unit (FF 6). As the geo-reference map 350 includes longitude and latitude coordinates (e.g., GPS location) (FF 7), Schubert teaches receiving a GPS location at the telematics unit. Schubert also discloses the geo-reference map 350 includes other information or a geographic information systems database, such as altitudes and bumpiness levels (FF 7). As previously discussed, the combined method of Cairns and Schubert uses the GPS location and road input (i.e., the bumpiness level) in order to adjust the noise parameter. Thus, the combined Cairns/Schubert

method teaches the steps of determining a road input based on the received GPS location and a geographic information systems database and adjusting a noise parameter for the hands-free system based on the determined road input.

Since Cairns and Schubert teach all the limitations of claim 33, Grivas and the taking of Official Notice are cumulative. Additionally, we note the Examiner's statement that "[c]laims 28, 30, 33, 35 and 36 are met" follows an explanation of how each of these claims limitations is met. Thus, contrary to Appellant's assertions (App. Br. 16), Appellant has been provided with an adequate explanation of the rejection for these claims.

For the above reasons, Appellant has not shown the Examiner erred in rejecting independent claim 33 and dependent claims 35 and 36 under 35 U.S.C. § 103(a) as being unpatentable over Cairns, Schubert, Grivas, and Official Notice.

(7) Claim 34

Claim 34 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Cairns, Schubert, Grivas, Official Notice, and Venkatesh (Ans. 9). Appellant contends that claim 34 is allowable for the same reasons as claim 33 (App. Br. 17). We are not persuaded by Appellant's argument for the reasons discussed above in connection with claim 33. This argument also fails to persuasively rebut the Examiner's prima facie case of obviousness – a position we find reasonable.

For the above reasons, Appellant has not shown the Examiner erred in rejecting claim 34 under 35 U.S.C. § 103(a) as being unpatentable over Cairns, Schubert, Grivas, Official Notice, and Venkatesh.

II. OBVIOUSNESS REJECTIONS INVOLVING STANKEWITZ

(1) Claim 21

With respect to representative independent claim 21, the Examiner also finds that the combination of Stankewitz and Schubert teaches all the limitations of this claim (Ans. 4-5). Appellant argues: (1) there is no motivation to combine Stankewitz's noise suppressing system with Schubert's device for reducing vibrations within an active cab suspension system; (2) the Examiner does not provide evidence or reason to support the combination; and (3) Stankewitz teaches away from the combination with Schubert (App. Br. 11-12; Reply Br. 3).

ISSUES

The following additional issues have been raised in the present appeal:

(1) Under § 103, has the Appellant shown the Examiner erred in failing to provide a motivation to combine Stankewitz and Schubert in rejecting claim 21?

(2) Under § 103, has the Appellant shown that Stankewitz teaches away from combining Schubert's bumpiness level with Stankewitz's interest to avoid any major technological expense in rejecting claim 21?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence.

Stankewitz

13. Stankewitz discloses a noise suppressing method for a hands-free system of a moving vehicle. (Stankewitz, ¶2, 5, 10, 12; The Figure).

14. Stankewitz's method includes detecting vehicle parameters (e.g., vehicle speed, rotational speed, load, current window position, convertible position) at step 11, obtaining starting parameters for noise suppression from the characteristic map at step 12, and further optimizing the noise suppression at step 14. (Stankewitz, ¶12; The Figure).
15. Stankewitz's system is supposed to "shorten[] the period of time for creating optimum call conditions and does not necessitate any major technological or computational expense." (Stankewitz, ¶5).

ANALYSIS

Stankewitz discloses a noise suppressing method for a hands-free system in a mobile vehicle (FF 13). Stankewitz discloses receiving a plurality of vehicle condition inputs at step 11, such as vehicle speed and whether the window is open or closed (FF 14), creating a starting noise parameter based on the vehicle conditions at step 12, and adjusting a noise suppression algorithm based on the created noise parameter at step 14. (*Id.*) As suppressing the noise of a hands-free system in a vehicle involves adjusting parameters (*id.*), Stankewitz also discloses a method of tuning a hands-free system in a mobile vehicle 10 based on the noise environment (FF 13-15).

As the Examiner admits (Ans. 3), Stankewitz does not disclose one of the vehicle inputs includes a road input based on global positioning coordinates. The Examiner relies on Schubert's disclosure of a geo-reference map 350 to teach this missing limitation (Ans. 4-5). With regard to claim 21, we have addressed how Schubert

teaches a road input based on global positioning coordinates and provides ample reason for combining with Cairns. We therefore incorporate that discussion by reference. This explanation is equally applicable to Stankewitz. That is, Stankewitz is concerned with filtering noise within a moving vehicle (FF 13-14), and Schubert identifies vibrations produced by a road surface, which in turn produce noises within a vehicle. Thus, similar to Stankewitz's recognition that vehicle and rotational speed (FF 14) affect noises within the vehicle, one of ordinary skill in the art would have recognized that the Schubert's bumpiness level teaches another property that affects noise and should be included in an algorithm, like Stankewitz's, to improve the noise suppression process (FF 13). *See* KSR, 127 S. Ct. at 1740.

Additionally, as discussed above, Schubert identifies the bumpiness of the road creates vibrations within the vehicle (FF 7-8). Thus, if Stankewitz's hands-free system was used within Schubert's vehicle, an ordinarily skilled artisan would have recognized the vibrations from the road surface would produce noise within the vehicle and should be factored into the combined Stankewitz/Schubert noise reduction algorithm to improve the noise suppression algorithm (FF 13-14). Thus, there is ample reason to combine Stankewitz and Schubert in rejecting claim 21.

We are also not convinced that Stankewitz teaches away from combining with Schubert (App. Br. 12-13). First, Stankewitz only discusses that the resulting design shortens the time period for creating optimum call conditions without necessitating any major

technological or computational expense (FF 15). Thus, this is not necessarily Stankewitz's goal, but the design's by-product. Second, Stankewitz states an interest in not necessitating any *major* technological or computational expense. (*Id.*) Including one more parameter into a method that already includes many variables would not require any major technological or computational expense. Third, Appellant fails to provide evidence that such a change would result in a major technological or computation expense. Instead, Appellant only argues that the inclusion *could* defeat the desire to shorten the period of time for creating optimum call conditions and *could* defeat the aim to avoid any major technological and computational expense (App. Br. 13). This argument that Stankewitz results *could* be defeated is insufficient to show the results are actually defeated such that there is no reasonable expectation of success in the combination. Moreover, arguments made by counsel do not take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602 (CCPA 1965); *see also In re Geisler*, 116 F.3d 1465 (Fed. Cir. 1997).

For the above reasons, Appellant has not shown the Examiner erred in rejecting claim 21 under 35 U.S.C. § 103(a) as being unpatentable over Stankewitz and Schubert.

(2) Claim 26

The Examiner finds that the combination of Stankewitz and Schubert teaches all the recited elements of claim 26 (Ans. 4-5). Appellant specifically contends with regard to claim 26 that the Examiner uses

hindsight and provides no evidence to conclude that changing global coordinates would result in a change in a bumpiness level and adjust the noise suppression algorithm appropriately (App. Br. 13). We disagree for the reasons previously discussed with regard to claim 26 in connection with the Cairns/Schubert combination. Additionally, for the same reasons discussed above in connection with claim 21, we find that the combination of Stankewitz and Schubert provides ample reason to include a bumpiness level as a mechanical characteristic of a vehicle that improves the noise suppression technique of Stankewitz's hands-free system.

Based on the foregoing, Appellant has not shown the Examiner erred in rejecting claim 26 under 35 U.S.C. § 103(a) as being unpatentable over Stankewitz and Schubert.

(3) Claims 23 and 27

Representative claim 23[8] recites that vehicle condition inputs include an external vehicle climate input based on the weather outside the vehicle. The Examiner finds the combination of Stankewitz, Schubert, and Venkatesh teaches this limitation (Ans. 6). Appellant repeats the argument that Stankewitz teaches away from being combined with Schubert or Venkatesh because each reference's teaching will increase the technological and computational expense and thus defeat the purpose of the teachings of Stankewitz (App. Br. 15; Reply Br. 3-4). For the reasons previous discussed above regarding the Examiner' rejection of claim 21 based on Stankewitz,

[8] Appellant argues claims 23 and 27 as a group (App. Br. 14-15). Accordingly, we select independent claim 23 as representative. 37 C.F.R. § 41.37(c)(1)(vii).

we disagree that including Schubert or Venkatesh's teachings with Stankewitz would create a major technological or computational expense so as to teach away from the combination.

For the above reasons, Appellant has not shown the Examiner erred in rejecting claims 23 and 27 under 35 U.S.C. § 103(a) as being unpatentable over Stankewitz, Schubert, and Venkatesh.

(4) Claim 24

Claim 24 recites the vehicle condition inputs include an audio-device input based on the type and intensity level of the ambient noise. The Examiner finds that the combination of Stankewitz, Schubert and Tomisawa teaches the recitations in claim 24 (Ans. 5-6). Appellant relies on the arguments of claim 21 and additionally repeats the argument that Stankewitz teaches away from being combined with Schubert or Tomisawa because each will increase the technological and computational expense and thus defeat the purpose of Stankewitz (App. Br. 14; Reply Br. 3). For the reasons previously discussed above regarding claim 21 and Stankewitz's teachings, we disagree.

Based on the foregoing, Appellant has not shown the Examiner erred in rejecting claim 24 under 35 U.S.C. § 103(a) as being unpatentable over Stankewitz, Schubert, and Tomisawa.

CONCLUSIONS

For the foregoing reasons:

(1) Under § 103, Appellant has not shown the Examiner erred in finding that the bumpiness level taught by Schubert is a road input based on global positioning coordinates as recited in claim 21.

(2) For the rejection of claim 21 under § 103, Appellant has not shown that Cairns teaches away from combining Schubert's bumpiness level with Cairns' disclosure of using only the vehicle's mechanical and electrical conditions to determine the noise parameter.

(3) Appellant has not shown that the Examiner erred in rejecting claim 26 under § 103 by relying on impermissible hindsight without providing evidence that Cairns and Schubert or Stankewitz and Schubert collectively teach determining a change in the road input and adjusting a noise suppression algorithm in response to the road input change.

(4) Under § 103, Appellant has not shown Cairns teaches away from combining Venkatesh's teaching of using weather condition as a noise characteristic with Cairns' disclosure of using only physical, mechanical and electrical conditions of the vehicle to reduce audio background noise in rejecting claims 23 and 27.

(5) Under § 103, Appellant has shown the Examiner erred in finding Cairns, Schubert, Grivas, and Official Notice collectively teach the road input is received from a call center as recited in claim 25 or receiving road input from the call center in response to the sending as recited in claims 28-32.

(6) Under § 103, Appellant has not shown Cairns teaches away from the combination with Schubert, Grivas, and Official Notice to

determine a road input based on the GPS location and geographic information system database that is used to adjust a noise parameter of a hands-free system as recited in claims 33-36.

(7) Appellant has not shown the Examiner erred in rejecting claims 21, 23, 24, 26, or 27 under § 103 by failing to provide a motivation to combine Stankewitz and Schubert.

(8) Appellant has not shown the Examiner erred in rejecting claims 21, 23, 24, or 27 under § 103 by arguing Stankewtiz teaches away from combining Schubert's bumpiness level with Stankewitz's interest not to have any major technological expense.

DECISION

The Examiner's decision (1) to reject claims 21, 23, 24, 26, 27, and 33-36 is sustained and (2) to reject claims 25 and 28-32 is not sustained. Accordingly, we affirm-in-part the Examiner's rejections of claims 21 and 23-36.

No period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

gvw

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